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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/705,194

11/10/2003

Roger D. St. Amand

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10/05/2004

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EXAMINER

WILLIAMS, ALEXANDER O

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,194

Applicant(s)

ST. AMAND ET AL.

Examiner

Alexander O Williams

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 and 46-52 is/are pending in the application.
- 4a) Of the above claim(s) 5, 8, 14-16, 18, 20, 22, 26, 27, 29, 31-34, 37 and 38 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35, 36, 39-43 and 46 to 52 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 9 and 10 is/are rejected.
- 7) ☒ Claim(s) 3, 6, 7, 11 to 13, 17, 19, 21, 23, 24, 25, 28 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>11/10/03; 6/8; 6/22/</u> | 6) <input type="checkbox"/> Other: _____ |

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Serial Number: 10/705194 Attorney's Docket #: AMK-B-0002

Filing Date: 11/10/2003;

Applicant: Amand et al.

Examiner: Alexander Williams

Applicant's election of species of figures 8A-8D (claims 1-4, 6, 7, 9-13, 17, 19, 21, 23, 24, 25, 28 30, 35, 36 and 39-43), filed 7/19/04, has been acknowledged. New claims 46-52 also read on the elected species to be examined.

This application contains claims 5, 8, 14-16, 18, 20, 22, 26, 27, 29, 31-34, 37 and 38 drawn to an invention non-elected without traverse. A complete response to the final rejection must include cancellation of non-elected claims or other appropriate action (see 37 CFR § 1.144 & MPEP § 821.01).

Claims 44 and 45 have cancelled.

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Initially, it is noted that the 35 U.S.C. § 103 rejection based on a substrate and at least one first support; and a top portion of the recess material and the adhesive layer making up an entire surface covered by an adhesive layer deals with an issue (i.e., the integration of multiple pieces into one piece or conversely, using multiple pieces in replacing a single piece) that has been previously decided by the courts.

In Howard v. Detroit Stove Works 150 U.S. 164 (1893), the Court held, "it involves no invention to cast in one piece an article which has formerly been cast in two pieces and put together...."

In In re Larson 144 USPQ 347 (CCPA 1965), the term "integral" did not define over a multi-piece structure secured as a single unit. More importantly, the court went further and stated, "we are inclined to agree with the solicitor that the use of a one-piece construction instead of the [multi-piece] structure disclosed in Tuttle et al. would be merely a matter of obvious engineering choice" (bracketed material added). The court cited In re Fridolph for support.

In re Fridolph 135 USPQ 319 (CCPA 1962) deals with submitted affidavits relating to this issue. The underlying issue in In re Fridolph was related to the end result of making a multi-piece structure into a one-piece structure. Generally, favorable patentable weight was accorded if the one-piece

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structure yielded results not expected from the modification of the two-piece structure into a single piece structure.

Claims 1, 2, 4, 9 and 10 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Tao et al. (U.S. Patent # 6,215,193 B1).

1. Tao et al. (figures 4 to 9) specifically figures 8 and 9 show a stack of semiconductor dies **510,520**, comprising: a substrate (**middle portion of 500**) including a first surface (**portion where 502 sits**); a first semiconductor die **510** having an active surface (**top of 510**) with at least one row of bond pads (**see figure 8, 511**), and an opposite inactive surface (**bottom of 510**); at least one first support (**end portions of 500**) having a first surface (**top of the end portions of 500**) and an opposite second surface (**bottom end portions of 500**), wherein the inactive surface of the first semiconductor die and the first surface of the at least one support are attached to the first surface of the substrate laterally adjacent to each other, and the active surface of the first semiconductor die and the second surface of the at least one first support are in a common plane (**top of 510 and top of end portions of 500**); a second semiconductor die **520** having an active surface (**top of 520**) with at least one row of bond pads (**see figure 8, 521**), and an opposite inactive surface (**bottom portion of 520**) that is entirely covered by a first adhesive layer (**505 and top portions of 501 material**), wherein the second semiconductor die is stacked on the active surface of the first semiconductor die and the second surface of the at least one support, is attached to the active surface of the first semiconductor die and the second surface of the at least one first support by the first adhesive layer, and does not overlap any of the bond pads of the first semiconductor die (**shown in figure 8**).

2. The stack of claim 1, Tao et al. show wherein there are two same size first supports (**end portions of 500**), each adjacent to a respective one of two parallel sides of the first semiconductor die.

4. The stack of claim 1, Tao et al. show wherein a side of the at least one first support is spaced from a facing side of the first semiconductor die; and further comprising: an encapsulant material covering the first surface of the substrate and the stack of the first and second semiconductor dies, and filling a volume defined between the facing sides of the at least one first support and the first semiconductor die and the first adhesive layer.

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9. The stack of claim 1, Tao et al. show wherein the first adhesive layer comprises a film.

10. The stack of claim 1, Tao et al. show wherein an area of the active surface of the second semiconductor die is at least equal to an area of the active surface of the first semiconductor die (see figure 4). Note that the specification contains no disclosure of either the critical nature of the claimed dimensions or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Therefore, it would have been obvious to one of ordinary skill in the art to use the substrate and at least one first support; and a top portion of the recess material and the adhesive layer making up an entire surface covered by an adhesive layer as "merely a matter of obvious engineering choice" as set forth in the above case law.

Claims 35, 36, 39-43 and 46 to 52 are allowed.

Claims 3, 6, 7, 11 to 13, 17, 19, 21, 23, 24, 25, 28 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Any such indication as to the allowability of these claims is reserved until which time a suitable response is filed.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/777,686,685,723,668,784,786,698,691,734,737,738	9/28/04
Other Documentation: foreign patents and literature in 257/777,686,685,723,668,784,786,698,691,734,737,738	9/28/04


Electronic data base(s): U.S. Patents	9/28/04
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AOW
9/28/04



Primary Patent Examiner
Alexander O. Williams